SIGMA®

BIOCHEMICALS ORGANIC COMPOUNDS AND DIAGNOSTIC REAGENTS

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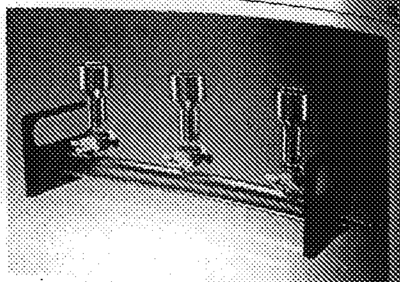
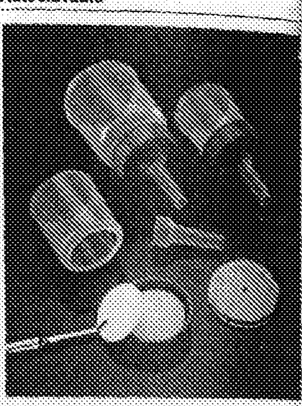
NEW PRODUCTS

PRODUCT NUMBER



VACUUM MANIFOLD, Nalgene

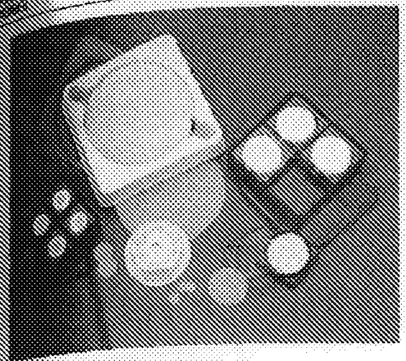
M 4664 Stainless steel with PTFE stopcocks. Designed with three vacuum ports each with a two-way valve and vent. Barbed fitting accepts 3/8" (9.5 mm) I.D. tubing. [illegible]
Autoclavable



ANALYTICAL TEST FILTER FUNNEL, Nalgene
Sterile, with 47 mm nitrocellulose membrane. Funnel body is polypropylene with polystyrene collar. Can be used in standard vacuum manifolds or filter flasks. Funnel and collar separate for removal of membrane.

2536	**Membrane:** 0.2 µm, white **Funnel capacity:** 100 ml	50 / pkg	[illegible]
2286	**Membrane:** 0.2 µm, white **Funnel capacity:** 250 ml	50 / pkg	[illegible]
2161	**Membrane:** 0.45 µm, gridded **Funnel capacity:** 100 ml	50 / pkg	[illegible]
2411	**Membrane:** 0.45 µm, gridded **Funnel capacity:** 250 ml	50 / pkg	[illegible]

US $

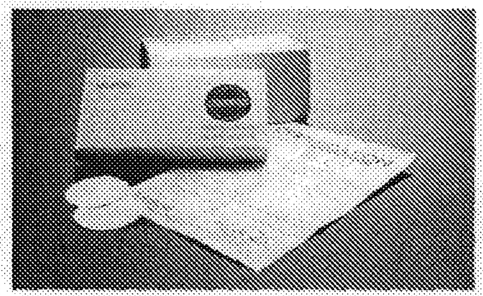


FILTER MEMBRANES, NITROCELLULOSE
Biologically inert nitrocellulose membranes containing a small amount of cellulose acetate for improved handling.
Autoclavable to 121°C; use below 75°C.
Chemically compatible with dilute acids and bases, hydrocarbons, non-polar liquids.
See also: Immobilon-NC in the Electrophoresis Equipment section for nitrocellulose blotting membranes.
MF-Millipore and TF-Millipore are registered trademarks of Millipore Corp.

Product Number	Pore Size (µm)	Diameter (mm)	Pkg	Price US $
MF-Millipore membranes have water extractables <5%, including a Triton wetting agent.				
[illegible]	0.22	13	100	43.30
[illegible]		25	100	45.35
N8645		47	100	66.95
N8770		142	50	162.75
Z35,865-7		293	25	185.85
N8895	0.45	13	100	44.30
[illegible]		25	100	37.10
N8145		47	100	66.95
N8270		142	50	162.75
Z35,984-8		293	25	185.85
N8022	0.65	25	100	50.50
N8147		47	100	77.25
N8772	0.8	25	100	46.35
N8897		47	100	77.25
Z35,873-8		293	25	196.35
N3521	5	13	100	44.30
N3646		25	100	49.45
N3771		47	100	82.40
N3896	8	13	100	44.30
N4021		25	100	50.50
N4146		47	100	82.40
N4271		142	50	179.25

PRODUCT NUMBER US $

Product Number	Pore Size (µm)	Diameter (mm)	Pkg	Price US $
TF-Millipore membranes are Triton-free and have even lower water-extractables than MF membranes.				
N 9395	0.22	13	100	52.55
N 9520		25	100	45.35
N 9645		47	100	66.95
N 9770		142	50	141.15
N 9895	0.45	13	100	48.45
N 0146		25	100	45.35
N 0271		47	100	73.15
N 0521		142	50	155.55



FILTER MEMBRANES FOR MICROBIOLOGICAL ANALYSIS
Filter type HA, 0.45 µm pore size, is designed to give complete retention and maximum recovery of total coliforms and fecal coliform bacteria. Complies with applicable U.S. EPA Standard methods and ASTM specifications for membrane filters used for drinking water analysis.
Filter type HC, 0.7 µm pore size, is designed for improved recovery of stressed fecal coliform organisms, especially those found in chlorinated effluents. The larger pore size permits faster filtration if the water sample has a higher particulate burden. Both filters are Millipore mixed cellulose esters (CA + CN).

S-PAK: filter membranes, sterile, individually sealed

Z35,553-4	0.45 µm pore size (HA filter) White with black grid surface	200 / pkg 1,000 / pkg	80.00 289.00
Z35,554-2	0.45 µm pore size (HA filter) Black with white grid surface	1,000 / pkg	482.00
Z35,555-0	0.7 µm pore size (HC filter) White with black grid surface	200 / pkg 1,000 / pkg	80.00 355.00

S-Kit: filter membrane plus absorbent pad, sterile, individually sealed, packed in 100's in dispenser tubes

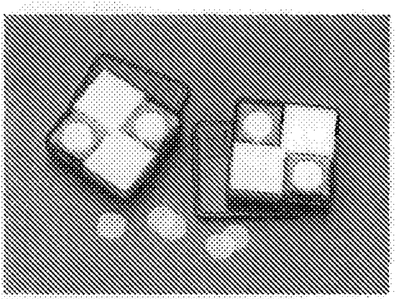
Z35,556-9	0.45 µm pore size (HA filter) White with black grid surface	1,000 / pkg	310.00
Z35,557-7	0.7 µm pore size (HC filter) White with black grid surface	200 / pkg 1,000 / pkg	82.00 380.00
Z35,558-5	Absorbent pads, 47 mm diameter, without membrane, for use as filter support.	100 / pkg 200 / pkg	25.00 35.50

PRODUCT NUMBER			US $

FILTER MEMBRANES, NYLON

Nylon filters are naturally hydrophilic and no wetting agents are used in manufacture. With an extractable level <0.0015 mg/cm^2, they are ideal for HPLC solvent and sample preparation. Because of high non-specific binding, they are not recommended for protein solutions.
Autoclavable; unaffected by temperatures up to 180°C.
Compatible with aqueous and most organic solvents.

Product Number	Description	Pkg	US $
Z29,082-3	**Pore size:** 0.2 µm **Diameter:** 25 mm	100 / pkg	49.10
Z29,080-7	**Pore size:** 0.22 µm **Diameter:** 47 mm	100 / pkg	73.35
Z29,081-5	**Pore size:** 0.45 µm **Diameter:** 25 mm	100 / pkg	54.50
Z29,079-3	**Pore size:** 0.45 µm **Diameter:** 47 mm	100 / pkg	73.35
Z29,078-5	**Pore size:** 0.45 µm **Diameter:** 90 mm	25 / pkg	43.75



FILTER MEMBRANES, ISOPORE TRACK-ETCHED POLYCARBONATE

Unique membrane for collection of particulates for inspection by light or electron microscopy. Isopore membranes have a flat, glassy, non-staining surface. They are hydrophilic, with a PVP wetting agent, and autoclavable.
Thickness: 10±0.5 µm
Color: white
Manufacturing process produces a membrane with precise pore size and narrow pore size distribution for accurate separations by particle size.

Product Number	Description	Pkg	US $
P 9199	**Pore size:** 0.2 µm **Diameter:** 25 mm	100 / pkg	42.25
P 9324	**Pore size:** 0.2 µm **Diameter:** 47 mm	100 / pkg	60.80
P 9449	**Pore size:** 0.4 µm **Diameter:** 25 mm	100 / pkg	42.25
P 9574	**Pore size:** 0.4 µm **Diameter:** 47 mm	100 / pkg	60.80
P 9699	**Pore size:** 5.0 µm **Diameter:** 25 mm	100 / pkg	54.60
P 9824	**Pore size:** 5.0 µm **Diameter:** 47 mm	100 / pkg	83.45

FILTER MEMBRANES, FLUOROPORE AND MITEX POLYTETRAFLUOROETHYLENE (PTFE)

Membranes of PTFE are biologically inert and have broad chemical compatibility.
Fluoropore and Mitex are registered trademarks of Millipore Corp.

Product Number	Pore Size (µm)	Circle diam. (mm)	Pkg	Price US $
Fluoropore PTFE membranes have a high-density polyethylene backing to improve handling. Compatible with solvents, acids, and bases (except aromatic hydrocarbons above 80°C.				
P 0325	0.2	25	100	177.20
P 0450		47	100	228.65
P 0575	0.5	13	100	140.10
P 0700		25	100	189.65
P 0825		47	100	233.85
P 9949	1.0	25	100	189.55
P 0200		47	100	244.75
Unlaminated Fluoropore PTFE membrane (no polyethylene backing) withstands even high-temperature aromatic solvents.				
P 1200	0.5	47	100	287.40
Mitex PTFE membranes are unlaminated and hydrophobic. Before use with aqueous solutions, they must be pre-wet with, e.g., methanol.				
P 1075	5	47	100	275.05
P 0950	10	47	100	275.05

FILTER MEMBRANES, DURAPORE POLYVINYLIDENE DIFLUORIDE (PVDF)

Durapore PVDF membranes are ideal for sterilization and clarification of protein solutions. Protein binding is on the order of 1 µg/cm^2, two orders of magnitude lower than nylon, nitrocellulose, or PTFE.
Autoclavable to 135°C.
Excellent chemical compatibility (except ketones, esters, amines, trifluoroacetic acid).
See also: Immobilon-P and Immobilon-P[SQ] in the Electrophoresis Equipment section for PVDF blotting membranes.
Durapore is a registered trademark of Millipore Corp.

Product Number	Pore Size (µm)	Diameter (mm)	Pkg	Price US $
P 9074	0.10	47	100	85.50
P 1188	0.22	13	100	51.50
P 1313		25	100	51.50
P 1438		47	100	84.50
P 1563		142	50	216.55
Z35,871-1		293	25	208.85
P 1688	0.45	13	100	58.75
P 1813		25	100	58.75
P 1938		47	100	82.45
P 4313		142	50	210.15
Z35,870-3		293	25	214.20
P 8949	5	47	100	92.70

WHATMAN QUALITATIVE FILTER PAPERS

For general laboratory uses, including qualitative analytical techniques and determinations. A range of papers with a variety of retention efficiencies and flow rates are available. Wet-strengthened papers have a small quantity of a stable resin added.
Maximum ash: 0.06%

	Grade 1	Grade 2	Grade 2V	Grade 3	Grade 4	Grade 5	Grade 6	Grade 113	Grade 113V
	Medium retention and flow rate for routine laboratory work	Slower filtration rate than Grade 1 with better particle retention. Pre-pleated Grade 2V saves time and improves flow rate compared to quadrant-folded papers.		Thick, high loading capacity and fine particle retention, higher strength. Suitable for Büchner funnels.	High flow rate with good retention of large particles and gelatinous precipitates	The most efficient qualitative paper for small particles, but a slow flow rate	Particle retention nearly as good as Grade 5 with twice the flow rate	Wet strengthened. An extremely strong creped paper with the fastest flow rate. Ideal for coarse or gelatinous precipitates. Pre-pleated Grade 113V saves time and improves flow rate compared to quadrant-folded papers.	
Retention (µm)	11	8		6	20-25	2.5	3	30	
Speed (s/100 ml)	150	240		325	37	1420	715	35	
Thickness (mm)	0.18	0.19		0.39	0.21	0.20	0.18	0.42	
Weight (g/m²)	87	87		185	92	100	100	125	
Wet burst (psi)	0.25	0.29		0.40	0.22	0.40	0.25	9	
Form	Flat	Flat	Pre-pleated	Flat	Flat	Flat	Flat	Flat	Pre-pleated
Diam. (cm)	Product Number / Pkg/100 US $	Product Number / Pkg/100 US $	Product Number / Pkg/100 US $	Product Number / Pkg/100 US $	Product Number / Pkg/100 US $	Product Number / Pkg/100 US $	Product Number / Pkg/100 US $	Product Number / Pkg/100 US $	Product Number / Pkg/100 US $
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] / 9.40	Z24,065-6 / 3.90	Z24,076-1 / 3.60	—	—

LTRATION

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49.10
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73.35
13.75
for
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1.80
1.25
1.80
1.60
1.45

US $	PRODUCT NUMBER

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(PTFE)

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Product Number	Pore Size (µm)	Circle diam. (mm)	Pkg	Pkg US $
Fluoropore PTFE membranes have a high-density polyethylene backing to improve handling. Compatible with solvents, acids, and bases (except aromatic hydrocarbons above 80°C.				
P 0325	0.2	25	100	[illegible]
P 0450		47	100	[illegible]
P 0575	0.5	13	100	[illegible]
P 0700		25	100	[illegible]
P 0825		47	100	[illegible]
P 9949	1.0	25	100	[illegible]
P 0200		47	100	[illegible]
Unlaminated Fluoropore PTFE membrane (no polyethylene backing) withstands even high-temperature aromatic solvents.				
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P 9074	0.10	47	100	[illegible]
P 1188	0.22	13	100	[illegible]
P 1313		25	100	[illegible]
P 1438		47	100	[illegible]
P 1563		142	50	[illegible]
Z35,871-1		293	25	[illegible]
P 1688	0.45	13	100	[illegible]
P 1813		25	100	[illegible]
P 1938		47	100	[illegible]
P 4313		142	50	[illegible]
Z35,870-3		293	25	[illegible]
P 8949	5	47	100	[illegible]

FILTRATION

WHATMAN QUALITATIVE FILTER PAPERS

For general laboratory uses. Including qualitative analytical techniques and determinations. A range of papers with a variety of retention efficiencies and flow rates are available. Wet-strengthened papers have a small quantity of a stable resin added.

Maximum ash: 0.06%

	Grade 1		Grade 2		Grade 2V		Grade 3		Grade 4		Grade 5		Grade 6		Grade 113		Grade 113V	
	Medium retention and flow rate for routine laboratory work		Slower filtration rate than Grade 1 with better particle retention. Pre-pleated Grade 2V saves time and improves flow rate compared to quadrant-folded papers.				Thick, high loading capacity and fine particle retention, higher strength. Suitable for Buchner funnels.		High flow rate with good retention of large particles and gelatinous precipitates		The most efficient qualitative paper for small particles, but a slow flow rate		Particle retention nearly as good as Grade 5 with twice the flow rate		Wet strengthened. An extremely strong creped paper with the fastest flow rate. Ideal for coarse or gelatinous precipitates. Pre-pleated Grade 113V saves time and improves flow rate compared to quadrant-folded papers.			
Retention (µm)	11		8				6		20-25		2.5		3		30			
Speed (s/100 ml)	150		240				325		37		1420		715		28			
Thickness (mm)	0.18		0.19				0.39		0.21		0.20		0.18		0.42			
Weight (g/m^2)	87		97				185		92		100		100		125			
Wet burst (psi)	0.25		0.29				0.40		0.22		0.40		0.25		9			
Form	Flat		Flat		Pre-pleated		Flat		Flat		Flat		Flat		Flat		Pre-pleated	
Diam. (cm)	Product Number	Pkg/100 US $	Product Number	Pkg/100 US $	Product Number	Pkg/100 US $	Product Number	Pkg/100 US $	Product Number	Pkg/100 US $	Product Number	Pkg/100 US $	Product Number	Pkg/100 US $	Product Number	Pkg/100 US $	Product Number	Pkg/100 US $
4.25	Z24,004-4	3.15	Z24,018-4	3.15	—		Z24,039-7	5.00	Z24,051-6	3.40	Z24,065-6	3.90	Z24,076-1	3.60	—		—	
5.5	Z24,005-2	3.15	Z24,019-2	3.25	—		Z24,040-0	5.50	Z24,052-4	3.90	Z24,066-4	4.35	Z24,078-8	4.20	—		—	
7.0	Z24,006-0	3.90	Z24,020-6	4.35	—		Z24,041-9	6.30	Z24,053-2	4.75	Z24,067-2	5.50	Z24,079-6	5.05	—		—	
9.0	Z24,007-9	5.00	Z24,021-4	5.00	—		Z24,042-7	8.60	Z24,054-0	5.80	Z24,068-0	7.70	Z24,081-8	7.10	Z24,088-5	8.10	—	
11.0	Z24,008-7	5.90	Z24,022-2	6.65	—		Z24,043-5	10.50	Z24,055-9	7.25	Z24,069-9	9.75	Z24,082-6	9.20	Z24,089-3	9.75	—	
12.5	Z24,009-5	6.35	Z24,023-0	8.25	Z24,030-3	27.00	Z24,044-3	12.65	Z24,056-7	9.55	Z24,070-2	11.90	Z24,083-4	11.25	Z24,090-7	11.90	Z24,097-4	31.45
15.0	Z24,010-9	9.20	Z24,024-9	11.25	Z24,031-1	29.75	Z24,045-1	18.70	Z24,057-5	11.90	Z24,071-0	17.90	Z24,084-2	17.30	Z24,091-5	16.75	Z24,098-2	36.10
18.5	Z24,011-7	13.35	Z24,025-7	16.10	Z24,033-8	33.45	Z24,047-8	24.60	Z24,058-3	18.10	Z24,072-9	26.40	Z24,085-0	25.70	Z24,092-3	25.75	Z24,099-0	45.90
24.0	Z24,012-5	21.90	Z24,026-5	26.50	Z24,034-6	45.35	Z24,048-6	42.65	Z24,059-1	31.30	Z24,073-7	43.65	Z24,086-9	39.95	Z24,093-1	40.85	Z24,100-8	64.05
27.0	Z24,013-3	26.25	—		Z24,035-4	51.40	—		Z24,060-5	40.70	Z24,074-5	53.45	—		Z24,095-8	49.90	Z24,101-6	73.95
32.0	Z24,014-1	35.70	Z24,028-1	54.45	Z24,036-2	71.70	Z24,050-8	87.50	Z24,061-3	58.95	—		Z24,087-7	70.80	Z24,096-6	71.75	Z24,102-4	99.15
40.0	Z24,016-8	59.00	—		Z24,037-0	92.90	—		Z24,062-1	87.70	—		—		—		Z24,103-2	144.20
50.0	Z24,017-6	90.00	—		Z24,038-9	139.50	Z28,562-3	191.80	Z24,064-8	131.20	—		—		—		Z24,104-0	202.55